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(Red)

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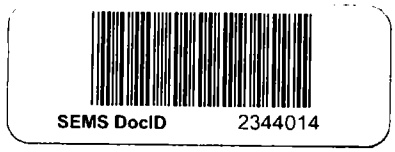

DRAFT PRE

A Preliminary Assessment

of

Getty Refinery and Marketing Co.

EPA No. DE-58

Emergency and Remedial Response Information System

Grant No. X-003282-01-0

1984

Presented to: U. S. EPA, Region III

Prepared by: Delaware Department of Natural
Resources and Environmental Control,
Solid Waste Branch

Nancy Camp, ERRIS Investigator

Robert Pickert, ERRIS Coordinator

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I. Introduction

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Inquiry Source - Eckhardt Survey

General Summary - Construction of the Delaware Refinery began around 1955. Presently the refinery is located on 1,000 acres on Wrangle Hill Road in Delaware City, DE.

The Getty Refining and Marketing Co. operates an oil refinery at Delaware City for the production of leaded and unleaded gasoline, diesel fuel, heating oil, kerosene, jet fuel and many other petroleum products.

GRMC is classified as a generator, treater and disposer (EPA I.D. DED002329738). GRMC generates 3 drums of spent solvent (1,1,1-trichloroethane) every 90- days which they store in their drum storage area. During a RCRA site inspection on July 31, 1984 the drum storage area was under violation. Five drums of trichloroethane were located in the area. Spills had obviously occurred on site. Oil stains were present on the ground and one of the drums was improperly sealed. The DNREC RCRA inspector sent a notice of violation to Getty in order to expedite clean up and proper management of the drum storage area.

GRMC also operates a Wellman Lord SO_2 Recovery Plant, directly north of its refinery facility. The process recovers the SO_2 from the flue gas and regenerates the scrubbing solution. The recovered SO_2 is converted into saleable sulfuric acid. Also on site is a spent acid regeneration plant which regenerates the spent acid coming from the refinery's alkylation unit, into SO_2 which is then coverted to sulfuric acid in the Wellman Lord Plant.[1]

Presently this facility is permitted (SW 83/24) to operate a 5 acre fly ash pond for the disposal of fly ash purge slurry and dried sulfate purge from the Wellman-Lord SO_2 Recovery Plant. Sampling of monitoring wells occurs quarterly. (See Appendix III)

It was discovered in March of 1984 that the Wellman-Lord Pond is leaking at a significant rate.[2] Getty is aware of this leakage and is presently making plans to construct another pond.

— GRMC also operates an industrial landfill east of its refinery near the Delaware River. The site of the existing landfill was first developed around 1955 as a borrow pit to provide fill material for the original refinery construction. The borrow site (which was in effect a large lake at the time was filled wtih dredge material from the Delaware River.

After the refinery began operation in the late 1950's this former borrow pit area had been used as an industrial landfill by GRMC. It is believed that a wide variety of solid wastes have been disposed of in pits at the southern end of the landfill over the past 20 years.

The pits where oily waste was disposed for the past 10 - 20 years are presently being excavated. When excavation is complete a liner (clay or dredge spoils) will be installed.

A list of the items currently disposed of is submitted periodically by GRMC to DNREC (see Appendix I). No hazardous waste are presently landfilled. A DNREC official is drafting a new permit for Getty's industrial landfill to ensure proper operation and management of the area. Groundwater in the landfill area is monitored quarterly. (See Appendix IV).

—GRMC also operates a land treatment area for oily wastes (hazardous). It is located west of the landfill.

The land treatment area is 20 - 30 acres. Oily sludge from the waste water treatment system is applied every 6 weeks in the summer season and less frequently during winter months. The wastes are spread, limed, and left to naturally decompose.[7] Monitoring wells exist on the land treatment area and are sampled quarterly. (See Appendix IV).

Recommendations - Getty Refining and Marketing Co.'s drum storage area, their industrial landfill and Wellman Lord Pond are extensively monitored and inspected regularly by the DNREC Solid Waste Management Branch.

The drum storage area at GRMC is out of compliance with RCRA regulations. Spills have occurred in the past at the drum storage area. Further investigation and enforcement will be carried out by the DNREC Solid Waste Branch.

The Industrial Landfill is also closely monitored and regulated by DNREC. A new permit is currently being drafted by DNREC to insure proper operation of the landfill.

The Wellman Lord Pond is another area of concern at GRMC. Presently the Water Supply Branch of DNREC is closely monitoring the leakage from the pond. A new pond is in the process of being permitted by a DNREC Solid Waste Branch.

Since all phases of GRMC are extensively monitored and inspected by various branches at DNREC, it is recommended that no further action be taken at this time under the ERRIS program.

II. Site History

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Permits - SW 83/24 was granted to operate an industrial landfill (lined pond) for the disposal of Fly Ash Purge slurry and dried sulfate purge from the Wellman-Lord SO_2 Recovery Plant.

DNREC is presenlty drafting a permit for the industrial landfill located on the east side of Route 9.

NPDES Permit DE 0000256 for effluent from the various sections of the plant.

Discharge 001 - Total Combined Discharge
Discharge 002 - Treated Ballast Water
Discharge 101 - Treated Process Water
Discharge 201 - Once Thru-noncontact Cooling Water
Discharge 301 - Effluent from API Separator No. 2
Discharge 401 - Cooling Water from Wellman Lord/Acid Plant
Discharge 501 - Boiler Blowdown from Wellman Lord/Acid Plant

APC permits held by Getty:

APC 81/822-O for Olefins Plants
APC 81/823-O Hydrodesulfurizer Hydrogen Unit
APC 81/824-O Napthalene Plant
APC 81/826-O Alkylation and Polymerization Units
APC 81/825-O Catalytic Reformer Unit
APC 81/283-O Oil Recovery System
APC 81/828-O Crude Unit
APC 81/830- Flare System
APC 81/833- Aromatic Fractionation and Strg. Facility
APC 81/832- Benxzene Extraction
APC 81/963- Solutizer Plants
APC 81/966- Hydrocracker Delaware City
APC 81/321- Cat Cracker & Gas Plant

Site Owner - Getty Refining and Marketing

Area Residents Vision - None were contacted. Area is predominantly industrialized.

Media Coverage - News Journal Wilmington March 20, 1984 Getty Oil Company Refining journalist Merritt Wallick. Getty has a 23 mile pipeline from Marcus Hook, PA to Getty's Delaware City Refinery. Stated that a leak could cause contamination of water.

June 14, 1984 Report on wells under fire (Getty - Author Nancy Kessler) Getty Refining and Marketing Co. is a major user of the Potomac Aquifer. Artesian Water Co. also uses Potomac Aquifer in this area. Consequently the state has temporarily stopped

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issuing well permits east of U. S. 13 and north of the canal. Intrusion problems may exist.

Nov. 17, 1983 Increase in Getty Smoke - Nancy Kessler. Getty is emitting many fine particles. 20 - 50% opacity standard measured. No standards for small particles exist. Other Background - GRMC obtained SWA 82/15 for disposal of sludge (produced from crude oil reclamation process at the Getty Pipe Company in Cherry Hill, New Jersey) at the land treatment site at the Getty Refining and Marketing Company in Delaware City, DE. October 1981 - March 1982.

- Old Brine Sludge Landfill (Diamond Shamrock) is located within 1/4 mile northwest of Getty's land treatment and landfill area.

- NOTE: A Hydrogeologic Investigation of the landfill area and the fly ash settling pond site have been completed by Dames and Moores and are available in the hazardous waste files and landfills file at DNREC.

Enforcement Status - Notice of violation from DNREC to Getty is pending for its drum storage area.

III. Environmental Setting

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Geology and Soils - The GRMC Delaware Refinery lies in the Atlantic Coastal Plain physiographic province. The geology of this area is characterized by several hundred feet of unconsolidated sediments or soils overlying bedrock.

Under the refinery site lies the following sequence of soils and rock (in descending order).

1. Columbia Formation
2. Merchantville Formation
3. Magothy Formation (present in south end of property)
4. Potomac Formation
5. Crystalline igneous and metamorphic bedrock.[4]

Well logs are available for the area of the industrial landfill. Thickness of each formation varies greatly within the Getty property. (See Appendix IV) The soils of the area are Metapeake-Sassafras-Urban land complex, with a 0 to 5 percent slope.

Groundwater - The major aquifers in the GRMC refinery area are the Columbia, Magothy and Potomac Formations. Englishtown Formation, a minor aquifer, is found at the extreme southern end of the GRMC property near Delaware City.

In the Columbia Formation the depth of groundwater ranges from 40 to 50 feet below the tops of the higher hills and is at the surface in the low land areas where groundwater contributes to the base flow of streams. The Columbia Aquifer is generally separated from the deeper cretaceous sediment aquifers by the Merchantville Clay.[3]

The Magothy Formation is closely associated with the upper aquifer zone of the Potomac Formation. The Potomac Formation is a confined aquifer in the GRMC refinery area. The Potomac Aquifer is generally artesian with piezometric levels that are originally above mean sea level.[3]

Surface Water - Two tributaries of the Delaware River are located within a mile of the Getty site. Dragon Creek is located 3/4 mile south of Getty. Red Lion Creek is located one mile to the north. Both creeks are tidal and drain into the Delaware River. The Delaware River is located within one mile to the east of the site.

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Land Use - North of the Getty property is industrialized. Delmarva Power and Light is to the north and Diamond Shamrock, and Georgia Pacific are to the northeast. Located south of the property is farm land and woodland. Southeast is Delaware City (see Population Distribution).

Population Distribution - 1 3/4 mile southeast of the Getty property is Delaware City population 1,858.[5] Approximately 650 persons are employed at Getty Refining and Marketing Co.

Water Supply - Getty has nine production wells in the area. Seven are located in the lower Potomac Aquifer, one in the middle Potomac and one in the Upper Potomac (see Appendix II).

Getty Marketing and Refining Company also uses water from Red Lion Creek and Dragon Run.

Getty has obtained DNREC permits for its production wells and withdrawal from Red Lion Creek and Dragon Run.

Critical Environments - Marine tidal marsh is located directly east of the landfill area.

Also the Canal National Wildlife Reservation Area is within 2 miles to the south of the Getty Refinery.

IV. Preliminary Assessment Form

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POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

EPA

REGION	SITE NUMBER (to be assigned by EPA)
III	DE-58

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Getty Refining and Marketing Company

B. STREET *(or other identifier)*: Wrangle Hill Road

C. CITY: Delaware City

D. STATE: DE

E. ZIP CODE: 19706

F. COUNTY NAME: New Castle

G. OWNER/OPERATOR *(if known)*

1. NAME: Getty Refining and Marketing Company

2. TELEPHONE NUMBER: (302) 834-6000

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

GRMC operates an oil refinery on this site. GRMC operates a waste-water treatment plant, a land greatment area and an industrial landfill.

J. HOW IDENTIFIED *(i.e., citizen's complaints, OSHA citations, etc.)*: Eckhardt Survey

K. DATE IDENTIFIED *(mo., day, & yr.)*: November 1979

L. PRINCIPAL STATE CONTACT

1. NAME: DNREC Solid Waste Management Branch

2. TELEPHONE NUMBER: (302) 736-4781

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☒ 3. LOW ☐ 4 NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☒ 1. NO ACTION NEEDED *(no hazard)*

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: _____
b. WILL BE PERFORMED BY: _____

☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: _____
b. WILL BE PERFORMED BY: _____

☐ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION

1. NAME: Nancy Camp

2. TELEPHONE NUMBER: (302) 736-4781

3. DATE *(mo., day, & yr.)*: 8/7/84

III. SITE INFORMATION

A. SITE STATUS

☒ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: _____ *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

☐ 1. NO ☒ 2. YES *(specify generator's four-digit SIC Code)*: _____

C. AREA OF SITE *(in acres)*: 1,000 acres

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE *(deg.-min.-sec.)*: 75% 40' 15"

2. LONGITUDE *(deg.-min.-sec.)*: 39° 35' 20"

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES *(specify)*: The refinery facility

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
1. RAIL	1. PILE	1. FILTRATION	X 1. LANDFILL
2. SHIP	2. SURFACE IMPOUNDMENT	2. INCINERATION	X 2. LANDFARM
3. BARGE	X 3. DRUMS	3. VOLUME REDUCTION	3. OPEN DUMP
4. TRUCK	4. TANK, ABOVE GROUND	4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS. TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify): Store for less than 90 days.	X 6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify): Waste water treatment facility.	

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

Wastewater treatment facility receives from storm sewer, chemical sewer and oily sewer on site. The facility produces a (hazardous) oily sludge which is landfarmed. The industrial landfill presently receives only non-hazardous waste.

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1. UNKNOWN ☒ 2. LIQUID ☐ 3. SOLID ☒ 4. SLUDGE ☐ 5. GAS

B. WASTE CHARACTERISTICS

☐ 1. UNKNOWN ☒ 2. CORROSIVE ☐ 3. IGNITABLE ☐ 4. RADIOACTIVE ☐ 5. HIGHLY VOLATILE
☐ 6. TOXIC ☐ 7. REACTIVE ☐ 8. INERT ☐ 9. FLAMMABLE

☐ 10. OTHER (specify): _____

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Getty and DNREC (manifests)

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: 300	AMOUNT:	AMOUNT: 150	AMOUNT: 5,000	AMOUNT:	AMOUNT:
UNIT OF MEASURE: tons/month	UNIT OF MEASURE:	UNIT OF MEASURE: gallons	UNIT OF MEASURE: gallons	UNIT OF MEASURE:	UNIT OF MEASURE:
(1) PAINT, PIGMENTS	(1) OILY WASTES	(1) HALOGENATED SOLVENTS	X (1) ACIDS HCL	(1) FLYASH	X (1) LABORATORY PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		X (3) OTHER (specify): 1,1,1 Trichloroethane and petroleum oil Recycled by Chem Solv Inc. approximately 3 gallons accumulated in 90 days.	(3) CAUSTICS	(3) MILLING/ MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify): Oily sludge from wastewater treatment facility.			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

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VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

- [X] 1. NPDES PERMIT
- [ ] 2. SPCC PLAN
- [ ] 3. STATE PERMIT (specify): Solid Waste - SW-83/24
- [ ] 4. AIR PERMITS
- [ ] 5. LOCAL PERMIT
- [ ] 6. RCRA TRANSPORTER
- [ ] 7. RCRA STORER
- [ ] 8. RCRA TREATER
- [ ] 9. RCRA DISPOSER
- [ ] 10. OTHER (specify): ~~EAP~~ EPA I. D. No. DED002329738

B. IN COMPLIANCE?

- [ ] 1. YES
- [ ] 2. NO
- [ ] 3. UNKNOWN

4. WITH RESPECT TO (list regulation name & number): _____

VIII. PAST REGULATORY ACTIONS

- [ ] A. NONE
- [X] B. YES (summarize below)

Notice of Violations for inadequate drum storage area.

IX. INSPECTION ACTIVITY (past or on-going)

- [ ] A. NONE
- [ ] B. YES (complete items 1,2,3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
RCRA Inspection	7/31/84	DNREC	

X. REMEDIAL ACTIVITY (past or on-going)

- [ ] A. NONE
- [ ] B. YES (complete items 1, 2, 3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.

Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

1, 1, 1, Trichloroethane and petroleum oil spilled in drum storage area is a potential hazard to groundwater.
The industrial landfill has in the past received oily sludge wastes. These areas are presently being excavated.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

The wellman Lord Fly ash Pond is presently leaking at a significant rate.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X			spills at drum storage area of 1,1,1, trichloroethane. Also past disposal practices at the landfill may have contaminated groundwater.
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER				
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL				
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS	X			Drum storage area - containers leaking and spills of 1, 1, 1, trichloroethane and petroleum.
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

Continue On Reverse

V. Field Trip Summary Report

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FIELD TRIP SUMMARY REPORT

PFE

This summary should be prepared in conjunction with the Preliminary Assessment Form, (EPA Form T2070-2), so that a proper site rating can be assigned.

Name of Site Getty Refining and Marketing Co.

EPA Case Number DE-58

TDD Number _____

I. If site is active, has owner/operator notified EPA in accordance with Section 3010 of RCRA. Yes___ No___

If Yes: a) Note EPA I.D. No. DED002329738
b) Is the site a generator, storer, treater or disposer of hazardous waste? (CIRCLE ONE).

II. If the answers submitted in Part VI (Hazard Description) of EPA Form T2070-2 or observations warrant a more thorough site investigation/sampling, please attach a sketch map showing those areas of concern. (i.e.: lagoons, leachate seeps, drum storage, monitoring wells, etc.).

III. Please list site contacts and accompanying inspectors; include name, title and phone numbers:

William J. Tansey, Environmental Engineer, Getty Refining & Marketing (302) 834-6354

Augustus Mergenthaler (DNREC) Environmental Engineer (302) 736-4781

George J. Bender (DNREC) Environmental Scientist (302) 736-4781

IV. Site observations: (attach a topo map).

A. Population within 1000 ft. of the site is (CIRCLE ONE)

1. 0-10 people
2. 10-100 people
3. greater than 100 people

B. List surrounding land use: (wood lot, agricultural, playground, industrial, etc.).

North: Industrial (Delmarva Power & Light, Diamond Shamrock)

South: Farmland, Woodland, Delaware City

East: Delaware River

West: Route 13 Residential

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FIELD TRIP SUMMARY REPORT TDD Number _____

C. Water supply for area. (CIRCLE ONE)

1. Surface intakes (locate on attached map)
2. Municipal wells (locate on map)
3. Domestic wells:
   a. Approximate number within 1/4 mile. _____
   b. Locate a minimum of 3 wells on attached map and list below:

Property owner	Getty has 9 production wells in area		
Address			
Phone No.			
Well records	YES X NO ___	YES ___ NO ___	YES ___ NO ___
Odor Problems	YES ___ NO X	YES ___ NO ___	YES ___ NO ___
Taste Problems	YES ___ NO X	YES ___ NO ___	YES ___ NO ___

c. If odor or taste problems are reported please elaborate: _____

D. Are surface or subsurface, (leachate), drainage areas from site apparent? YES ___ NO X. If yes:

1. Were unusual odors or stains noted? YES X NO ___ Stains at drum storage area
2. Was stressed vegetation noted? YES ___ NO X

E. Are streams or receiving waters adjacent to site? YES ___ NO ___
If yes, list observations: (i.e. - change in benthic community, change in plant ~~density/diversity~~, change in color, siltation, etc.). _____

Delaware River is less than ¼ mile to the east.

F. Site topography: (i.e. - plateau, strip mine ravines, etc.). _____

Site slopes down toward Delaware River.

G. Other observations: (i.e. - erosion, located in flood plain, etc.). _____

The landfill is located within the Delaware River's floodplain.

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FIELD TRIP SUMMARY REPORT TDD Number _____

V. Were photographs taken? YES___ NO___
If yes: Who has custody of photographs?

Name: Nancy Camp

Agency: DNREC, Solid Waste Mgmt. Branch

Phone No.: (302) 736-4781

VI. Is a hydrogeological survey for this site attached? YES___ NO___
If no, Section III D of EPA Form T2070-2 must be completed.

VII. Please attach pertinent copies of reports or data reviewed by inspector: (i.e. - State monitoring data, consultant reports, etc.).

VIII. Name of Inspector: Nancy Camp

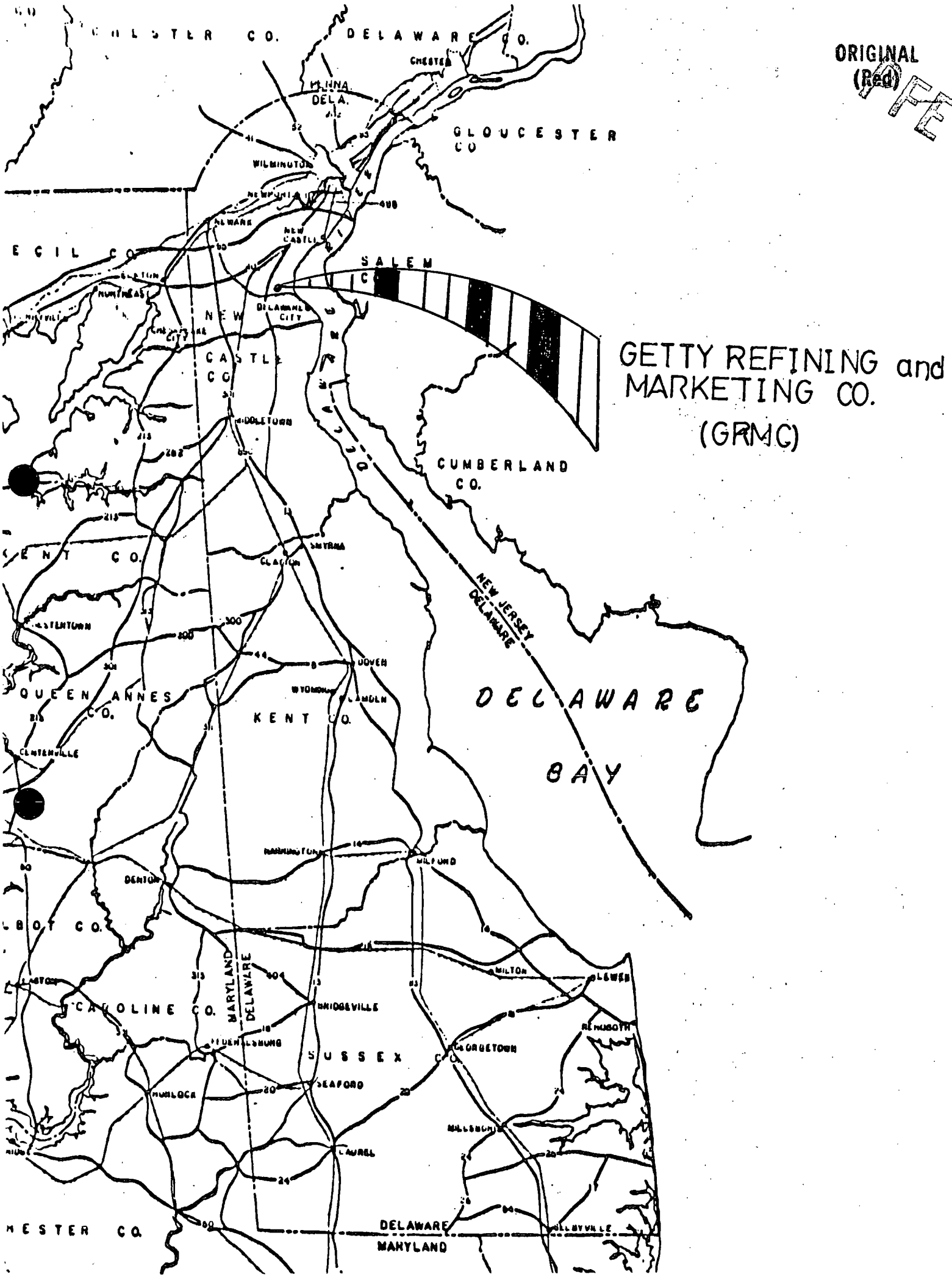
Agency: DNREC

Phone No.: (302) 736-2662

Time on Site: 9:00 a.m. - 11:00 a.m.

Weather Conditions: Sunny 75°F

VI. Maps and Drawings



GETTY REFINING and MARKETING CO.
(GRMC)

Attachment

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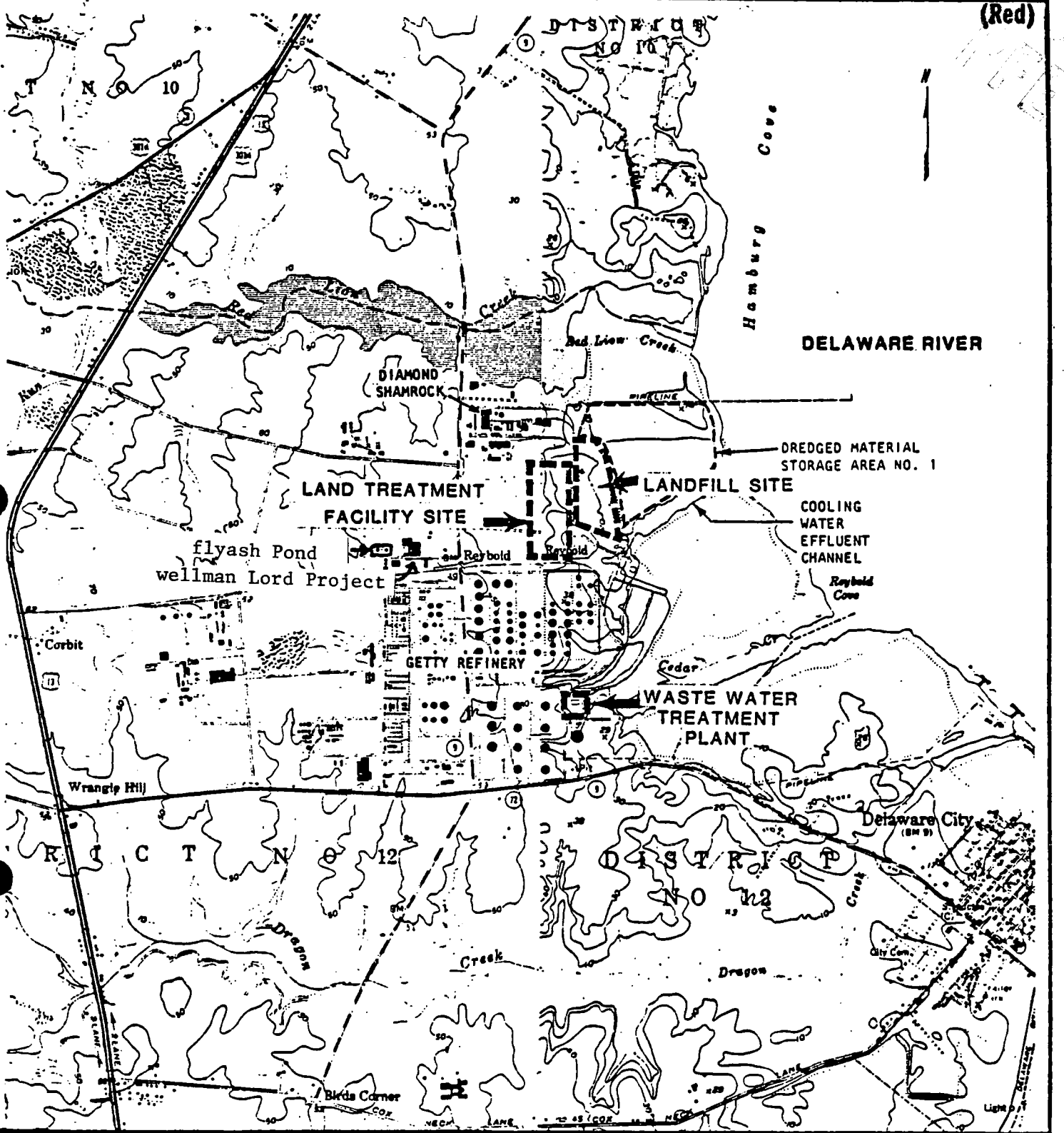
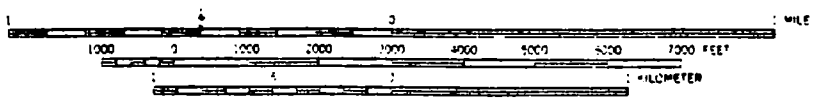
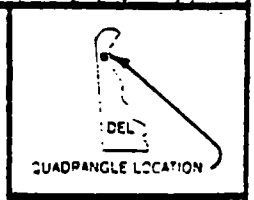


MAP OF AREA





CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

REFERENCE:
THIS MAP WAS PREPARED USING PORTIONS OF THE ST. GEORGES, DEL. (1953) AND DELAWARE CITY, DEL.-N.J. (1948) U.S. GEOLOGICAL SURVEY QUADRANGLE SHEETS, 7½ MINUTE SERIES, BOTH PHOTOREVISED IN 1970 .

VII. Photographs

1

2

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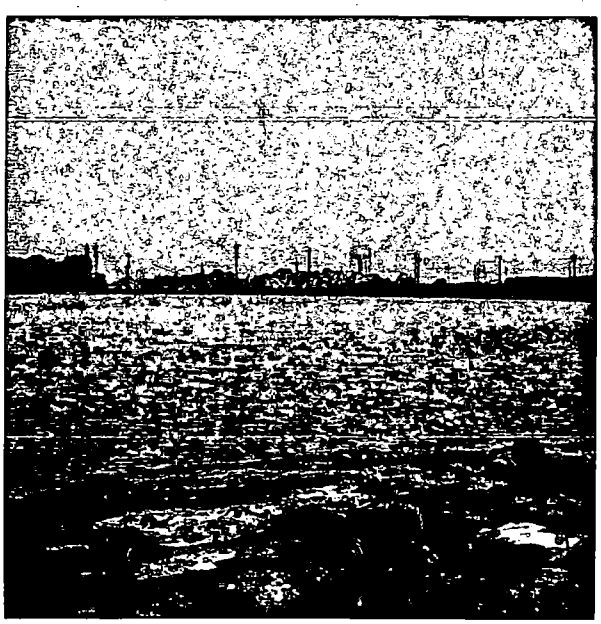

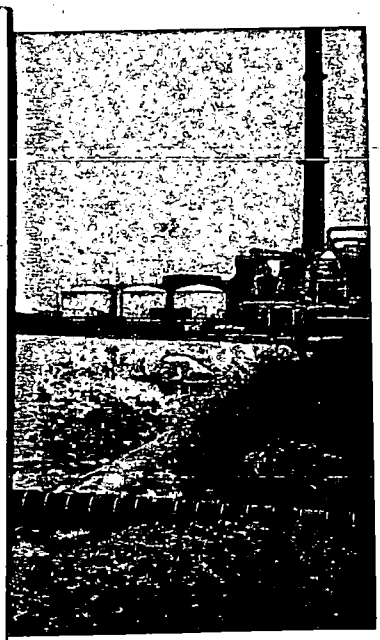

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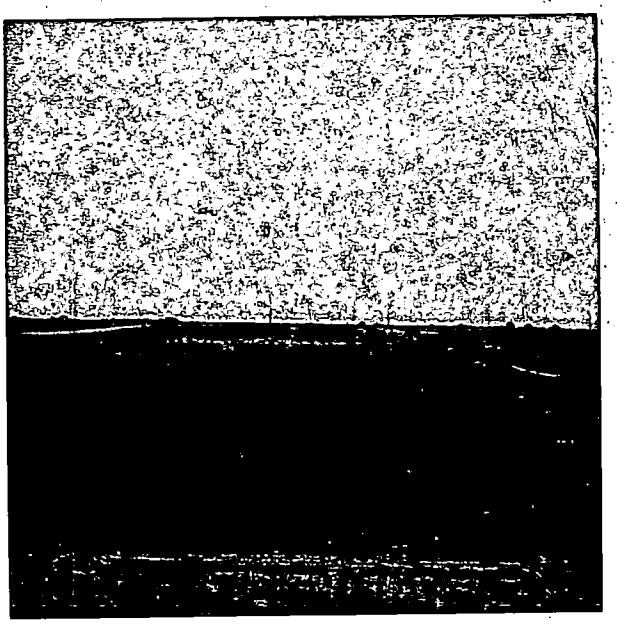

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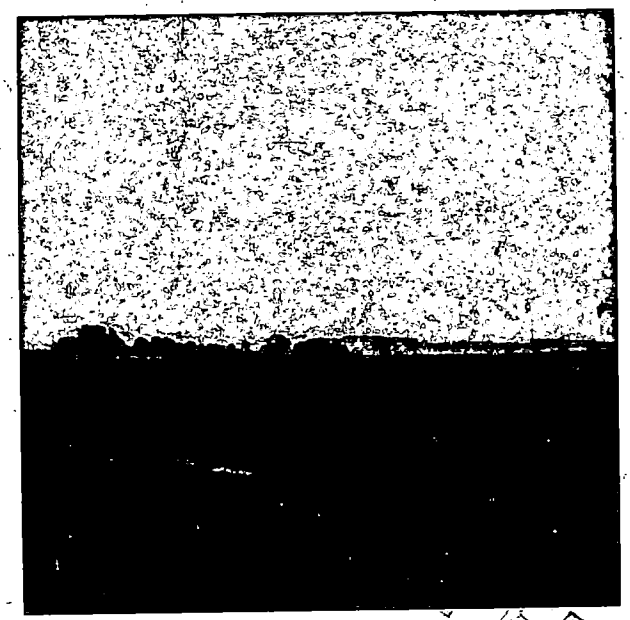
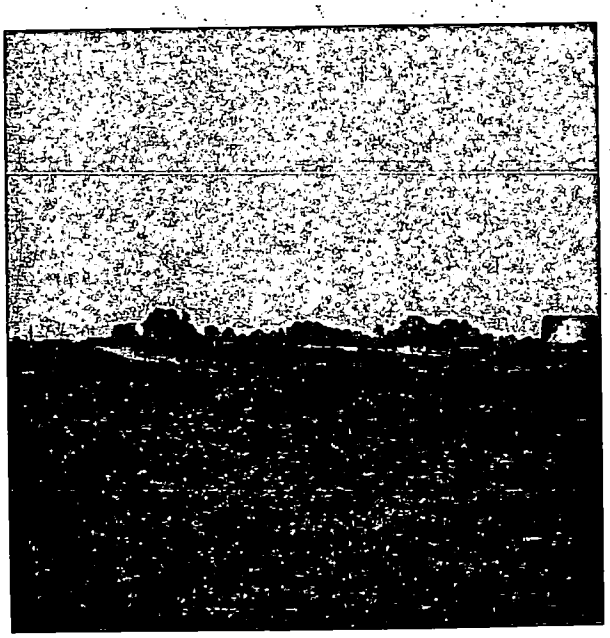


ORIGINAL
(Red)

5



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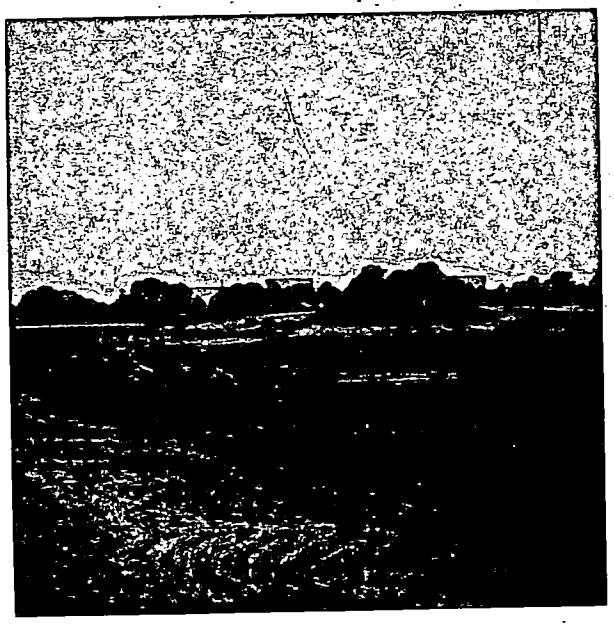

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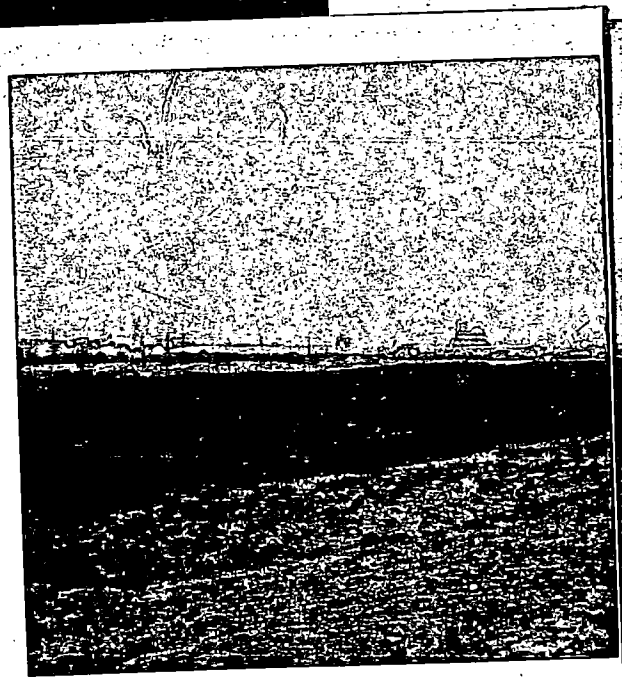
(Red)



8

ORIGINAL
(Red)

PFE

Photographs

Photo 1 & 2	Drum storage area (1,1,1 trichloroethane) stains on soil from overflow of drums
Photo 3	Wellman Lord Fly Ash Pond presently leaking. Construction of new pond has begun to the west of photos.
Photo 4, 5, & 6	Land treatment unit. Dark areas recently applied, light areas applied 2 months ago.
Photo 7	Old disposal pits - excavated. Liner will be installed under new permit.
Photo 8	Dirt and oil sludge excavated from pits spread in order for degradation to occur.

VIII. References

References

1. P. Leckner, Process Engineer, Davy McKee Corp. Process of Wellman-Lord SO_2 Recovery.

2. Groundwater Studies at Getty's Wellman Lord Pond, March 8, 1984.

3. Hydrogeologic Investigation - Phase II Site of Existing Industrial Landfill at Getty Refinery and Marketing Co., Dames & Moore, January 1979.

4. Availability of Groundwater in New Castle County, Delaware by R. W. Lundstrom and T. E. Pickett, University of Delaware, Water Resources, Newark, DE, July, 1977.

5. 1980 Census

6. Memo Ron Stouffe to Ken Weiss proposal by Getty for improvements to their existing landfill and land spread of oily sludges (MF) Sept. 5, 1979.

7. W. J. Tansey - Environmental Engineer Getty Convo. 8/9/84

IX. Appendix

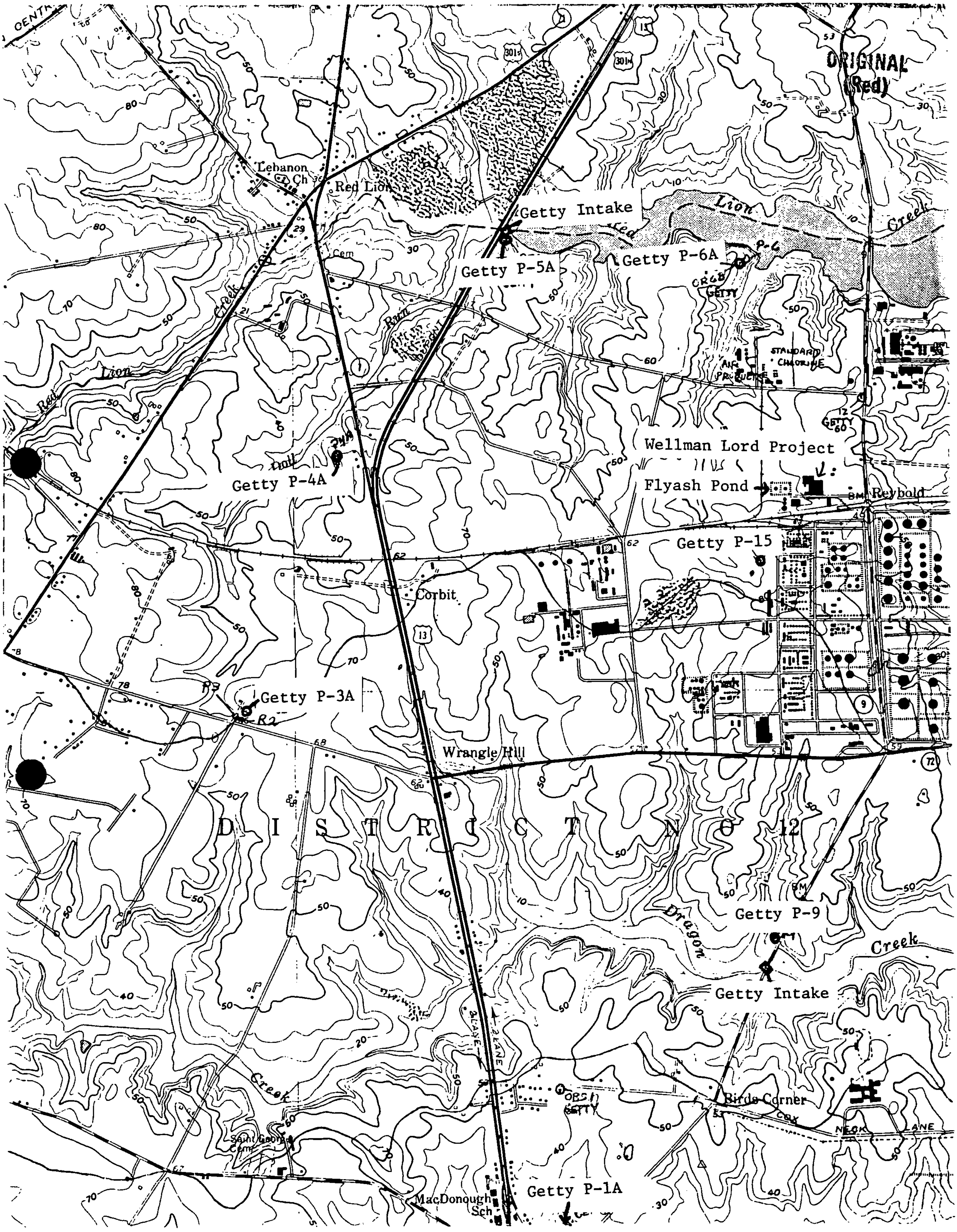
Appendix I

Type of waste disposed of in Dec., 1980 quarter
IN LANDFILL

Inert debris
Trash
Coke
Oily sludge
Napthalene
Insulation
Bio sludge
Sludge holding tank
Poly catalyst
Soda ash
Cat cracker catalyst
Desulfurizer catalyst

Appendix II

Production Wells


ORIGINAL (Red)
Lebanon Ch
Red Lion
Getty Intake
Getty P-5A
Getty P-6A
Red Lion Creek
Standard Chlorine
Air Products
Wellman Lord Project
Getty P-4A
Flyash Pond
Reybold
Getty P-15
Corbit
Getty P-3A
Wrangle Hill
DISTRICT NO 12
Dragon Creek
Getty P-9
Getty Intake
Birds Corner
Cox Neck Lane
Saint Georges Cem
MacDonough Sch
Getty P-1A

ORIGINAL
(Red)

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
89 KINGS HIGHWAY
P.O. BOX 1401
DOVER, DELAWARE 19903
TELEPHONE: (302) 736 - 4761

WATER ALLOCATION

ALLOCATION NO: 83-0002M
EFFECTIVE DATE: 01/01/83
EXPIRATION DATE: 01/01/88

Pursuant to the provisions of 6010f, 7 Del. C., an allocation of water is hereby granted to: Getty Marketing and Refining Company, for the withdrawal and use of water from the following water facilities:

Well #	Location	Aquifer	Latitude	Longitude	Maximum Pumping Capacity (gpm)
P-1A	Clark Corner Rd.	Upper Potomac	39°33'28"	75°38'58"	500
P-4A	Route 7	Lower Potomac	39°35'41"	75°39'49"	400
P-5A	Route 13	Lower Potomac	39°36'18"	75°38'49"	400
P-6A	Gov. Lea Road	Lower Potomac	39°36'16"	75°38'17"	400
P-16	Wrangle Hill Rd.	Lower Potomac	39°34'50"	75°37'27"	400
P-9	Route 9	Lower Potomac	39°34'24"	75°38'11"	850
P-10A	Wrangle Hill Rd.	Lower Potomac	39°34'23"	75°36'18"	1000
P-15	GMRC Refinery	Middle Potomac	39°35'23"	75°38'13"	650
P-3A	U.S. 13 & DE 72	Lower Potomac	39°34'57"	75°40'13"	400
Red Lion Cr.	Route 13	Surface	39°36'18"	75°38'49"	900
Dragon Run	Clark Corner Rd.	Surface	39°34'39"	75°38'13"	1300

OTHER APPROVALS

1. Approval for the use of this water for human consumption must be obtained from the Division of Public Health.

2. This approval is subject to all appropriate regulations and approvals of the Delaware River Basin Commission.

EQUIPMENT AND REPORTING PROCEDURE

1. Upon replacement or repair of pumping equipment, each well must be equipped with a mechanism for recording water levels - either an airline and gauge or a 1/2" diameter access port and drop line.

2. Each water facility must be equipped with a meter for recording water withdrawal rates and cumulative volume of pumpage to a design precision of ±2%.

ORIGINAL
(Red)

3. Readings on pumping rate, water levels and cumulative pumpage must be made and recorded at least daily. This and other relevant information, such as water purchases and sales, is to be recorded on a form provided by the Department of Natural Resources and Environmental Control and submitted by the permit holder to the Department annually by October 31st or more frequently if requested by the Department.

ALLOCATION

1. Withdrawals from all wells shall not exceed 6 million gallons in any twenty-four (24) hour period.

2. Withdrawals from all wells shall not exceed 180 million gallons in any thirty (30) day period.

3. Withdrawals from all wells shall not exceed 1,500 million gallons in any year.

4. Withdrawal rates shall not exceed the following limits:

Well #	DNREC Permit #	Maximum Pumping Rate (gallons/day)	Maximum Pumping Level (Feet below land surface)
P-1A	53065	720,000	205
P-4A	54935	576,000	365
P-5A	10459	576,000	435
P-6A	10057	576,000	425
P-16	10460	576,000	485
P-9	10058	1,224,000	515
P-10A	53066	1,440,000	520
P-15	10066	936,000	290
P-3A	49005	520,000	390

* "Maximum permissible pumping levels and rates may be subject to modification based upon studies such as the USGS Potomac Aquifer Model and the DRBC Special Groundwater Study."

4A. Withdrawals from the following surface water sources shall not exceed the following limits:

Source	DNREC Permit	Daily Max.	Monthly Max.	Yearly Max.
Red Lion Creek	8013	1.30 mg	38.9 mg	466.8 mg
Dragon Run	8014	1.87 mg	56.2 mg	618.2 mg

5. Use of surface water - except as subject to any quality limitations - will be maximized at all times to conserve underground storage of water, minimize the rise of brackish water movement into and through the aquifer and to extend and sustain the use of the aquifer.

6. The allocated water shall be used only for the purpose of industrial and potable supply. The latter in the plant or on tankers serving the refinery. Any change in the intended use must receive prior approval from the Department.

ORIGINAL
(Red)

PFE

6. The allocated water shall be used only for the purpose of industrial and potable suply. The latter in the plant or on tankers serving the refinery. Any change in the intended use must receive prior approval from the Department.

7. All laws and regulations governing the construction, operation, maintenance and repair of water wells and water supplies in the State of Delaware will be obeyed.

8. Representatives of the Division of Environmental Control, Delaware Geological Survey and the U.S. Geological Survey, may inspect the wells at any time and may conduct any tests and collect any samples that are deemed necessary.

9. This permit is specifically subject to the requirements of 7 Del. C. §6031.

10. If the withdrawal of water pursuant to this allocation has significant adverse effects including, but not limited, to reduction of streamflow, water levels, migration of pollutants, or encroachment of salt water, the Division of Environmental Control may require action to rectify the problem.

11. This permit expires five (5) years from date of issuance. Upon expiration, a new permit may be issued by the Secretary upon application by the permittee specified herein.

12. This permit is transferable only if written approval is obtained from the Division of Environmental Control.

13. Violations of conditions of this permit are subject to penalties provided in 7 Del. C., Chapter 60.

14. WATER CONSERVATION MEASURES

This approval is contingent on practice by the permit holder of reasonable efforts to minimize the unnecessary use and/or waste of water. The permittee must:

A. Establish a program of periodic monitoring and evaluation of water usage, and

B. Establish a systematic leak detection and control program whch is responsive to high unaccounted for water usage rates, routine maintenance, or discovery of leaks,

C. Alert employees of the need to conserve water and reduce wasteful usage,

D. Develop a contingency plan to be implemented in the event of water shortage emergencies. This plan should include:

1. Identification of emergency water sources,

2. Priorities of water usage, and

3. Emergency measures to curtail water usage.

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(Red)

The permittee need not submit written material to the Department but must be prepared to document compliance with these conditions upon request by the Department.

Signed _____

Michael A. Apgar, P.G.
Supervisor
Water Supply Branch

cc: Bureau of Environmental Health
Delaware River Basin Commission
Delaware Geological Survey
U. S. Geological Survey

ORIGINAL
(Red)

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
89 KINGS HIGHWAY
P.O. BOX 1401
DOVER, DELAWARE 19903

TELEPHONE: (302) 736-4761

July 6, 1984

Mr. R. W. Ladd
Getty Refining and Marketing Co.
Delaware City, Delaware 19706

Dear Mr. Ladd:

Pursuant to your letter to Michael Apgar of January 20, 1984, enclosed please find a modified water allocation permit authorizing withdrawal of ground and surface waters for industrial purposes.

The permit is essentially unchanged except for the inclusion of your new well #P-4A and some correction of latitude and longitude designations.

Also enclosed are a set of Delaware River Basin Commission (DRBC) application forms. I have spoken with them regarding your most recent replacement wells. I attempted to dissuade them from requiring GRMC to apply for and receive approval for use of the three (3) replacement wells (1A, 4A, 10A) that have been installed since your last docket was written in 1981 (incorporating well P-3A). I felt that being the replacement wells had similar pumping capacities and screened intervals to the old wells that they might waive formal application procedures. I was, however, unsuccessful and therefore you must complete the enclosed forms and return them to this office. An application fee based on the cost of the three replacement wells must also be submitted. The check should be made payable to the DRBC and sent with the application materials to this office for forwarding to the DRBC.

I request that you respond to this letter as soon as possible. Should you have any questions please feel free to contact me at 736-4793.

Sincerely,

Philip J. Cherry
Geohydrologist
Water Supply Branch

PJC:kjn
Enclosures

ORIGINAL (Red)

GRMC – DELAWARE REFINERY

PROPOSED GROUND WATER MONITORING WELLS AND ANALYSIS FOR LANDFILL AND LAND TREATMENT FACILITY

A. The landfill (LF) area and land treatment (LT) area is considered as one waste management facility.

B. 6 Monitoring Wells: Hydraulically Upgradient – #13 (LF area); #22 (LT area).
Hydraulically Downgradient – #4, #24 (LF area), #18, #19 (LT area).

C. 21 Parameters for Suitability of Drinking Water Supply: Arsenic, Barium, Cadmium, Chromium, Fluoride, Lead, Mercury, Nitrate (as N), Selenium, Silver, Endrin, Lindane, Methoxychlor, Toxaphene, 2-4-D, 2-4-5 TP Silver, Radium, Gross Alpha, Gross Beta, Turbidity, Coliform Bacteria.

D. 6 Parameters for Ground Water Supply: Chloride, Iron, Manganese, Phenols, Sodium, Sulfate.

E. 4 Parameters as Indicators of Ground Water Contamination: pH, Specific Conductance, Total Organic Carbon, Total Organic Halogen.

LABORATORY ANALYSIS SCHEDULE	1983 (1st year) JAN	1983 (1st year) APR	1983 (1st year) JULY	1983 (1st year) OCT	1984 APR	1984 OCT	1985 APR	1985 OCT	1986 APR	1986 OCT	1987 APR	1987 OCT	1988, etc. APR	1988, etc. OCT
21 Parameters (all 6 wells) - drinking water supply	x	x	x	x		x		x		x		x		x
6 Parameters (all 6 wells) - ground water quality	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4 Parameters (all 6 wells) - ground water contamination	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4 Parameters (Wells 13 and 22) - ground water contamination - minimum 4 replicate measurements for each analysis	x	x	x	x										

NOTE: Ground water monitoring requirements are described in "Amendment 1 to Regulations Governing Hazardous Wastes", published by DNREC on September 24, 1982 (pages 35 through 44).

Well logs available at DNREC.

GROUNDWATER MONITORING DATA

(ELEVATION DATUM: MEAN SEA LEVEL)

ORIGINAL (Red) 1982 4th quarter

WELL NO.	1	2	3	4	5	7	10	12	13
DATE.	11-1-82								1
WATER LEVEL	8.5	7.9	6.6	5.6	6.9	7.6	8.2	8.8	8.6
Bicarb Alk		20		58		68			30
Carb Alk									
Conductivity		1600		1900		1300			800
pH		5.8		6.1		6.3			5.9
Temp, °F									
TDS		1117		1301		1125			430
Boron									
Chlorides		300		250		88			120
Fluorides									
Nitrate-N									
Nitrite-N									
Phenols									
Phosphate									
Sulfates		25		725		575			32
TOC		1		16		14			1
COD		<10		47		17			<10
NH3-N		<1		3		7			<1
Metals, ppm									
As				<0.050		<0.050			<0.050
Cd				0.020		<.010			<0.010
Ca									
Cr				<0.050		<0.050			<0.050
Cu									
Fe				0.2		0.9			0.3
Pb				<0.050		<0.050			<0.050
Mg									
Mn				50		16			0.040
Hg				<0.002		<0.002			<0.002
Mo									
Ni									
K									
Se				0.011		0.035			0.018
Na		280		330		220			150
V									
Zn		<1		<1		<1			<1

In the process of searching for more recent data from monitoring wells in Landtreatment + Landfill

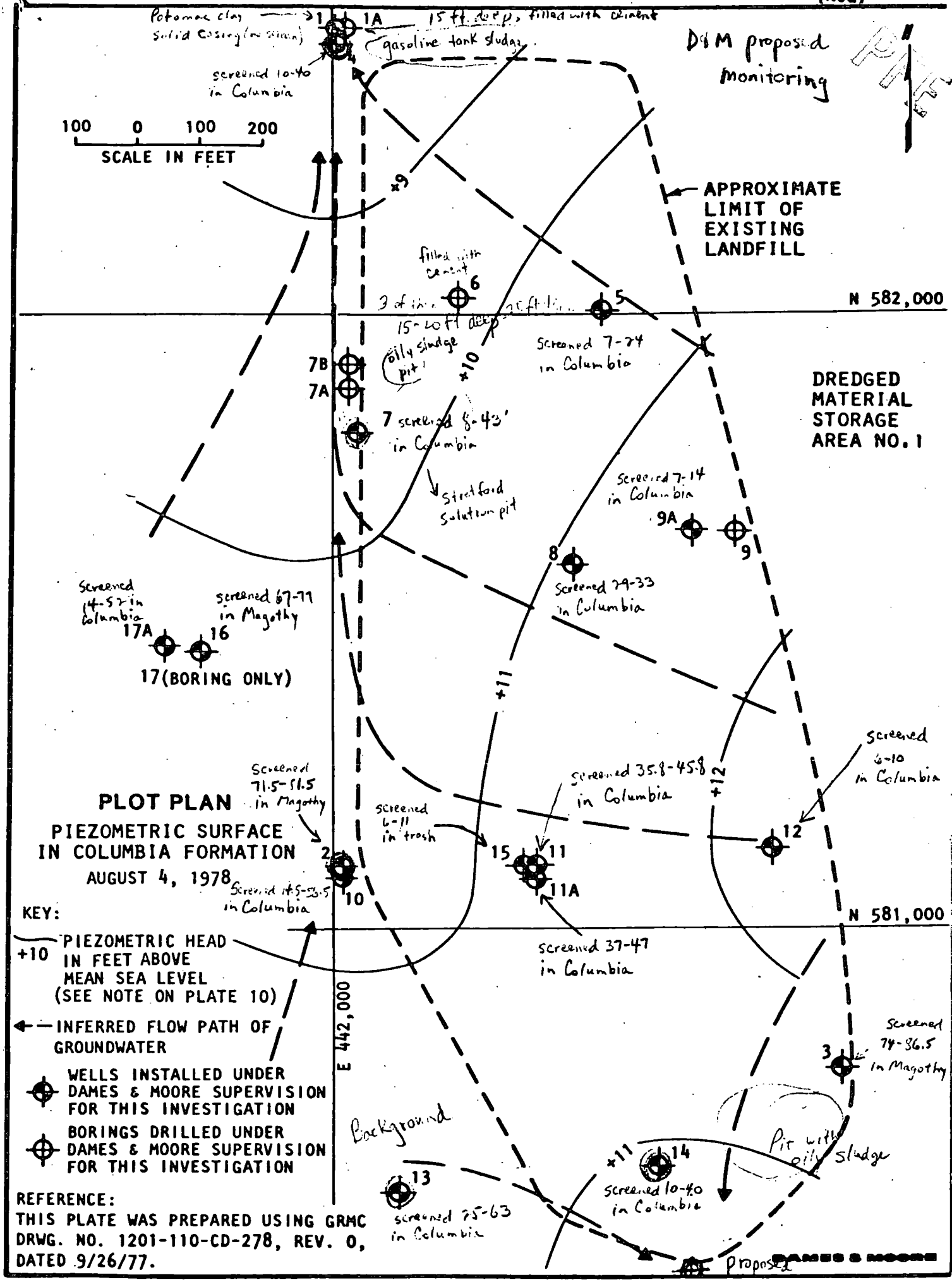
ORIGINAL
(Red)

GROUNDWATER MONITORING DATA

(ELEVATION DATUM: MEAN SEA LEVEL)

WELL NO.	14	16	17						
DATE.	11-1-82	———	———						
WATER LEVEL	8.4	7.5	7.5						
Bicarb Alk	30								
Carb Alk									
Conductivity	1800								
pH	6.0								
Temp, °F									
TDS	553								
Boron									
Chlorides	160								
Fluorides									
Nitrate-N									
Nitrite-N									
Phenols									
Phosphate									
Sulfates	115								
TOC	1								
COD	<10								
NH_3-N	<1								
Metals, ppm									
As	<0.050								
Cd	0.025								
Cr	<0.050								
Cu									
Fe	0.2								
Pb	<0.050								
Hg									
Mn	3.6								
Ag	<0.002								
Mo									
Ni									
K									
Se	0.027								
Na	170								
V									
Zn	<1								

ORIGINAL
(Red)



PLOT PLAN

PIEZOMETRIC SURFACE IN COLUMBIA FORMATION

AUGUST 4, 1978

KEY:

+10 — PIEZOMETRIC HEAD IN FEET ABOVE MEAN SEA LEVEL (SEE NOTE ON PLATE 10)

← — INFERRED FLOW PATH OF GROUNDWATER

⊕ WELLS INSTALLED UNDER DAMES & MOORE SUPERVISION FOR THIS INVESTIGATION

⊕ BORINGS DRILLED UNDER DAMES & MOORE SUPERVISION FOR THIS INVESTIGATION

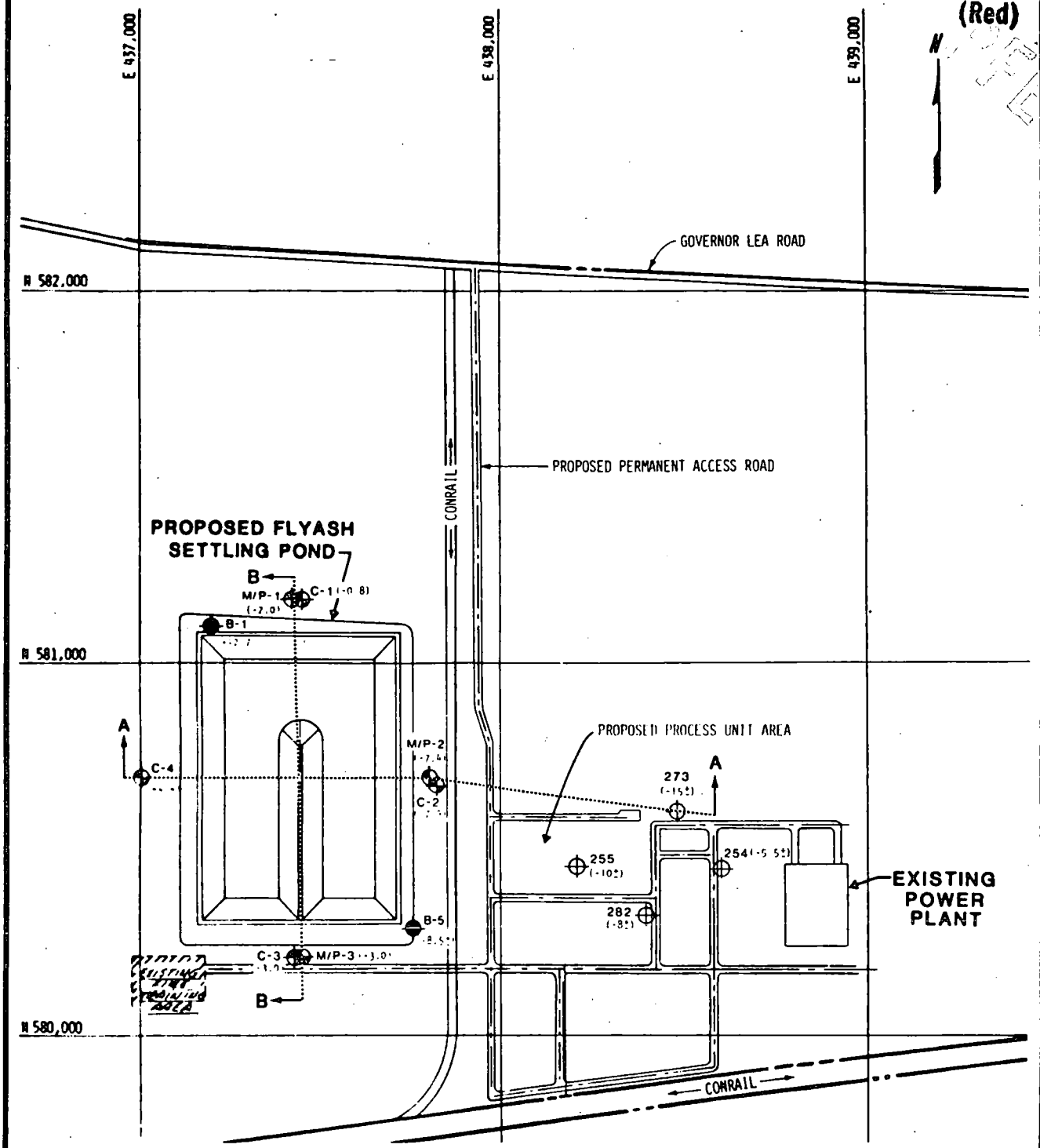
REFERENCE:
THIS PLATE WAS PREPARED USING GRMC DRWG. NO. 1201-110-CD-278, REV. 0, DATED 9/26/77.

Appendix III

Wellman Lord Pond

Monitoring Wells
Groundwater Elevation Contours
Analysis of Samples from Well C-7

ORIGINAL (Red)



PLOT PLAN

WELLMAN-LORD PROJECT SITE

200 0 200 400

SCALE IN FEET

KEY:

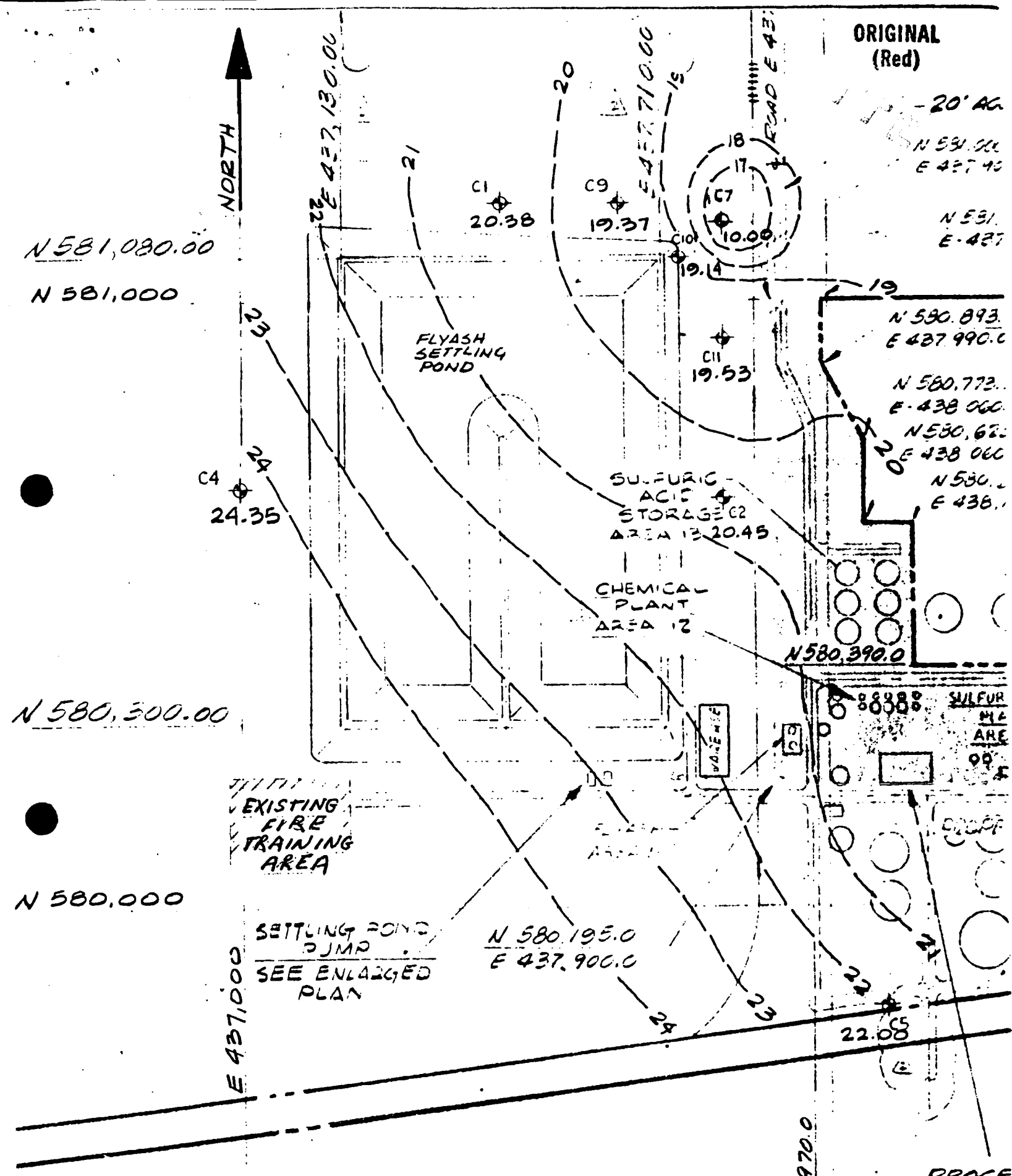
- OBSERVATION WELLS INSTALLED UNDER DAMES & MOORE SUPERVISION FOR THIS INVESTIGATION
- BORINGS DRILLED IN 1977 UNDER DAMES & MOORE SUPERVISION
- BORINGS DRILLED IN 1955 UNDER DAMES & MOORE SUPERVISION
- (+00) ELEVATION OF BOTTOM OF COLUMBIA FORMATION / TOP OF MERCHANTVILLE FORMATION
- GEOLOGIC PROFILE LOCATIONS (SEE PLATES 3 AND 4 FOR PROFILES)

REFERENCE

THIS PLAN WAS PREPARED USING GETTY REFINING AND MARKETING COMPANY DWGS No 1271-110-CO-2, REV [illegible], DATED JUNE [illegible], 1977 AND No 1271-110-RD-12, REV [illegible], DATED JANUARY 6, 1978

DAMES & MOORE

PLATE 2



FLYASH SETTLING POND GROUNDWATER ELEVATION CONTOURS

BASED ON DATA COLLECTED JAN. 14, 1984

Well near Wellman - Lord Pond

ORIGINAL (Red)

PFF

GROUNDWATER MONITORING DATA

(ELEVATION DATUM: MEAN SEA LEVEL)

WELL NO.	C-7	C-7	C-7	C-7	C-7	C-7	C-7	C-7
DATE.	12-5-83	12-13-83	12-19-83	1-3-84	1-4-84	1-16-84	1-23-84	1-30-84
WATER LEVEL								
Bicarb Alk								
Carb Alk								
Conductivity	2000	1800	1700	2000	1800	2000	2000	2000
pH	5.6	5.8	5.3	5.5	6.0	5.6	5.4	5.1
Temp, °F								
TDS	1100	1000	1497	1200	1606	1645	1100	1100
Boron								
Chlorides					25			
Fluorides								
Nitrate-N								
Nitrite-N								
Phenols								
Phosphate								
Sulfates	415	725	640	400	600	790	560	990
TOC					2			
COD								
NH_3-N								
Metals, ppm								
As								
Cd								
Ca								
Cr								
Cu								
Fe					<0.1			
Pb								
Mg								
Mn					<50 ppb			
Hg								
Mo								
Ni					<1			
K								
Se					<10 ppb			
Na	350	400	440	350	440	390	390	460
V	<1				<1			
Zn								
SO_3	<1	<1	<1	<1		<1	<1	<1
HARDNESS					270			

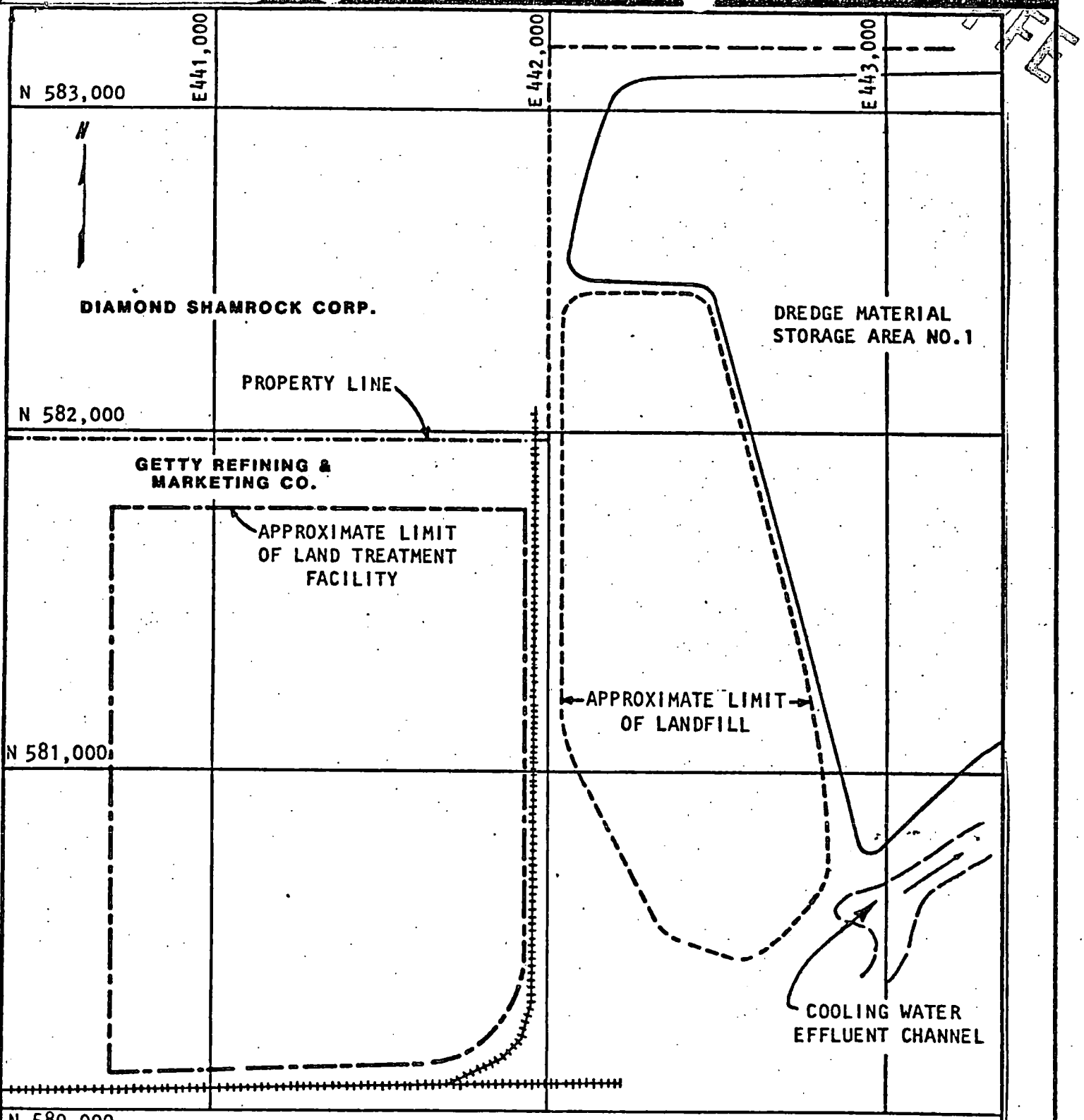
Appendix IV

Map of Land Treatment Facility & Landfill
Location of Monitoring Wells at Landfill Site
1982 Monitoring Well Data from Landfill Area
Geologic Profile of Landfill Area

Form Approved OMB No. 158-S80004

ORIGINAL

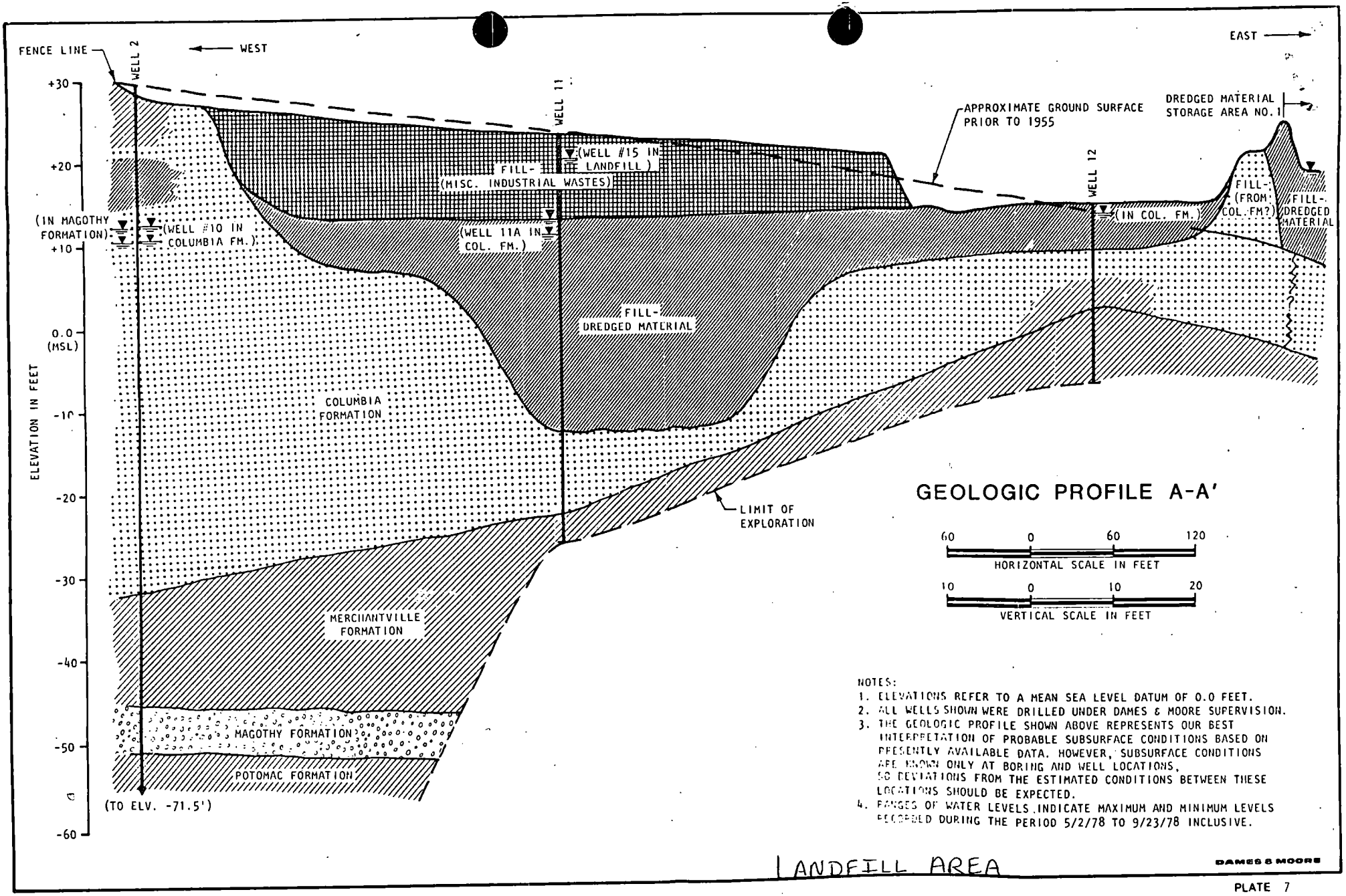
V. FACILITY DRAWING *(see page 4)*



LANDFILL AND LAND TREATMENT SITE PLAN
DELAWARE PETROLEUM REFINERY
GETTY REFINING AND MARKETING COMPANY
DELAWARE CITY, DELAWARE

200 0 200 400

SCALE IN FEET



GEOLOGIC PROFILE A-A'

60 0 60 120
HORIZONTAL SCALE IN FEET

10 0 10 20
VERTICAL SCALE IN FEET

NOTES:
1. ELEVATIONS REFER TO A MEAN SEA LEVEL DATUM OF 0.0 FEET.
2. ALL WELLS SHOWN WERE DRILLED UNDER DAMES & MOORE SUPERVISION.
3. THE GEOLOGIC PROFILE SHOWN ABOVE REPRESENTS OUR BEST INTERPRETATION OF PROBABLE SUBSURFACE CONDITIONS BASED ON PRESENTLY AVAILABLE DATA. HOWEVER, SUBSURFACE CONDITIONS ARE KNOWN ONLY AT BORING AND WELL LOCATIONS, SO DEVIATIONS FROM THE ESTIMATED CONDITIONS BETWEEN THESE LOCATIONS SHOULD BE EXPECTED.
4. RANGES OF WATER LEVELS INDICATE MAXIMUM AND MINIMUM LEVELS RECORDED DURING THE PERIOD 5/2/78 TO 9/23/78 INCLUSIVE.

LANDFILL AREA

DAMES & MOORE

PLATE 7

ORIGINAL (illegible)

51